

## **FACTS ABOUT THE FEMALE BRAIN**

1. Hormones greatly impact female brain at every stage of life right from birth. They 'fertilize' neurological connections responsible for new thoughts, emotions and interests. Fluctuations begin as early as 3 months and are constantly changing and harder to predict.
2. Women have 11% more neurons than men in the language and hearing centers of the brain. Three distinct areas devoted to language.
3. The hippocampus (principal hub of emotion and memory formation) as well as the area for language and observing emotions in others, is larger in females.
4. Psychological stress of conflict impacts female brain more deeply and is perceived differently in the female brain. Great desire to stay connected, gain approval and nurture through communication and compromise.
5. Estrogen increase at puberty causes girls to start to focus intensely on their emotions and on communication.
6. Tremendous unique aptitude exist - outstanding verbal agility, ability to connect deeply in friendships, nearly psychic capability to read faces, tone of voice and other non-verbals, ability to defuse conflict.
7. Wired with desire for 'mutual gazing' as infants...to hold eye contact, study facial expressions and interpret intonation. Lack of facial expression is VERY confusing to little girls. Often interpreted as they are 'doing something wrong' and they are driven to try and get a positive response. (Could explain why many females are drawn to emotionally unavailable men).
8. Social approval more important to females. Have ability to hear a broader range of emotional tones in the human voice than boys.

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9. Infantile puberty lasts 24 months in females. Ovaries produce huge amounts of estrogen that marinate the female brain. Stimulates the brain circuits, spurs growth and development of neurons enhancing the brain for observation, communication, gut feelings, tending and caring, empathy.
10. Within a few minutes of meeting, little girls will suggest games, work together and create a little community. Will seek common ground and explore possible friendship.
11. Females as young as age two begin using terms of collaborative proposals like 'Let's'. Participate jointly in decision making, with minimal stress, conflict or displays of status. Don't like rough play and take turns 20 times more often than boys.
12. Have three areas of the brain devoted to language. More talking is often imperative to the learning process.
13. Develop language and fine motor skills about 6 years earlier than boys.
14. Often ask a teacher for help and enjoy a close relationship with a teacher.
15. Prefer fiction - short stories and novels.
16. Multitask well and make easy transitions.
17. Like to be faced, looked in the eye and smiled at often.
18. Need encouragement to support and build them up.
19. Women may cry four times as easily than men in order for there to be unmistakable signs of sadness or suffering that men can't ignore.
20. Prenatal exposure to an opposite-sex hormonal environment, like testosterone in a genetically female brain, leads the nervous system and brain circuits to develop along more male-typical lines.

*Compiled from 'The Female Brain' by Louann Brizendine, M.D.*

## FACTS ABOUT THE MALE BRAIN

1. 2.5 times more brain space devoted to sexual drive.
2. Brain centers for action and aggression are larger than females.
3. Larger processor in the core of the Amygdala...the most primitive area of the brain, registering fear and triggering aggression.
4. Testosterone increase at puberty causes boys to decrease desire to communicate and become more focused on scoring - in games and in the backseat of the car.
5. Male brain does not have ability to hear and interpret voice intonation and emotional tones nearly as well as female brain.
6. Boys, in groups, use language to command others, get things done, brag, threaten, ignore a partner's suggestion and override each other's attempts to speak. Don't hesitate to take action or grab something they want.
7. Not concerned about risk of conflict. Competition very important (65% of free time) and part of their makeup. Routinely ignore comments or commands given by girls. Don't look for social connections like females.
8. Boys love wrestling, mock fighting, rough play with cars, trucks, swords, guns and noisy - preferably explosive toys. Play is NOT about relationships/collaboration but about the toy itself as well as social rank, power, defense of territory and physical strength.
9. Stress will often heighten love circuits and sexual desire, unlike females who experience a decrease.
10. Elementary school boys prefer to draw action scenes like car and plane crashes. Include dynamic movement and only a few colors.
11. By age 12 months, boys are more willing to reach for forbidden objects and have to have twice as many verbal warnings than females.

By age 27 months, boys more often will go behind their parents back to take risks and break rules.

12. The real purpose of play is to test physical limits and determine social ranking. Losing is unacceptable. The 'victory cry' is everything.
13. By first grade, boys get a brain 'high' from dopamine when they show their strength and aggression. Physical force together with insults is even better. This dopamine rush is addictive, leading to always seeking the thrill of the next high.
14. By age 2, the brain is already driving the boy to establish physical and social dominance. By age 6, many boys feel that 'real fighting' is the "most important thing to be good at".
15. Boys learn better by squirming because signals get sent from the brain into the muscles in his body even when he isn't moving. Learning is both mental and physical for boys.
16. 'Embodied Cognition' - Muscles and body parts used to learn a word will stay connected to the meaning of that word. i.e. - learning the word 'run' will stimulate signals being sent to both the language part of the brain and the leg muscles.
17. Spatial manipulation - mental rotation of objects superior in male brain by age 5. Researchers asked boys how they solved conceptual math problems and they explained not in words, but by body movements. They squirmed, twisted, turned and gestured with their hands and arms to explain how they got the answer.
18. Testosterone surges at puberty cause relentless pursuit of every scrap of sexual information they can obtain. In addition, the action, exploration, risk taking, anger and aggression circuits will all be drastically increased.
19. A part of the hypothalamus is twice as large in gay males as in straight males. This is caused by the way testosterone reacts with the developing brain.
20. The teenage male brain is like a race car with a high powered engine and Model T brakes.

*Compiled from the 'The Male Brain' by Louann Brizendine, M.D.*



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